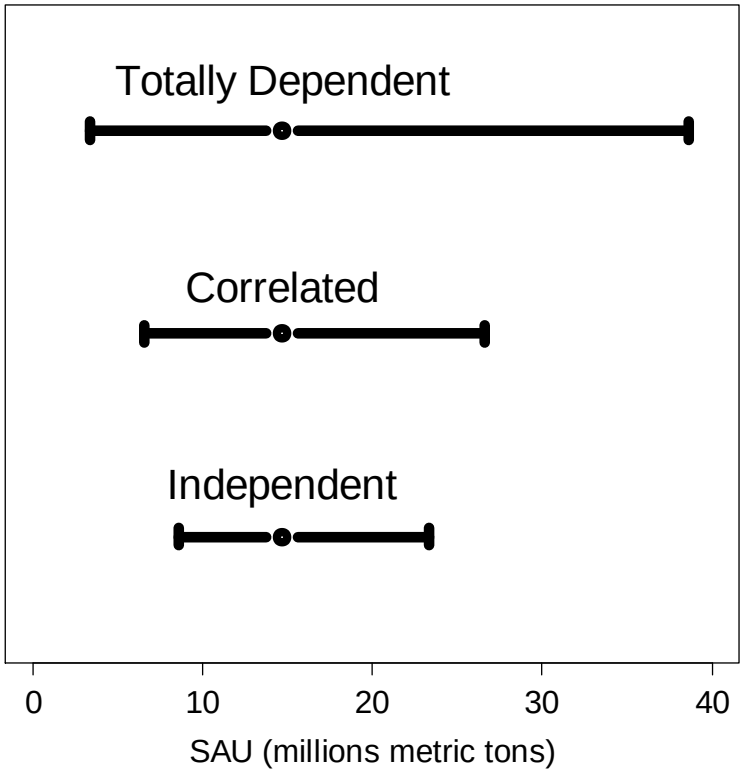
The following graph is a hypothetical example of the aggregation of a set of storage assessment units, SAUs, under different assumptions of dependence.



The assumptions as illustrated above from top to bottom are 1) total dependence, 2) geologist specified dependence and 3) total independence between pairs of SAUs. The circles in the center of the above three bars are means, which are identical for all three scenarios. The left vertical bar is the 10^{th} percentile, while the right vertical bar is the 90^{th} percentile.

In the assessment of conventional oil and gas resources it is widely recognized that independence and total dependence are unrealistic assumptions. For a large suite of assessment units (AUs), some may be highly pairwise correlated, others may be moderately so, and some will have little or no correlation. Geological similarity often is determined by expert judgment based on an analysis of such factors as communality between charge, rocks and/or timing. Similar dependencies are believed to exist in SAUs, however, the attributes that determine dependencies may differ.

The uncertainty interval is critical in decision making. This interval can vary significantly as a function of the assumptions of dependency, as the above graph illustrates.

The data used to construct the above graph are as follows:

Assumption	P10	Mean	P90
Independent	8.6	14.7	23.3
Correlated	6.6	14.7	27.6
Total Dependence	3.4	14.7	38.6

The R-code used to construct the above graph is shown below:

```
xc<-c(14.7,14.7,14.7)
uiw<-c(8.6,11.9,23.9)
liw<-c(6.1,8.1,11.3)
plotCI(xc,y=c(1,2,3),uiw,liw,err='x',yaxt="n",ylab="",
  xlab="SAU (millions metric tons)",ylim=c(0.5,3.5),lwd=8,
  xlim=c(0,40),cex.lab=1.5,cex.axis=1.5)
text(14.7,1.25,"Independent",cex=2)
text(14.7,2.25,"Correlated",cex=2)
text(14.7,3.25,"Totally Dependent",cex=2)
```